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Date: 1/15/57

# Technical Standard Order

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**Subject: TSO-C25a, AIRCRAFT SEATS AND BERTHS (TYPE I  
TRANSPORT, 6G FORWARD LOAD)**

## Technical Standard Orders for Aircraft Materials, Parts, Processes, and Appliances

Under section 601 of the Civil Aeronautics Act of 1938 and the delegation of authority from the Civil Aeronautics Board in § § 3.18, 4a.31, 4b.18, 6.18 and 7.18 of the Civil Air Regulations, the Administrator of civil Aeronautics is authorized to adopt performance standards and specifications of materials, parts, processes, and appliances used in aircraft as he may find necessary to implement provisions of the Civil Air Regulations. The Administrator adopted the Technical Standard Order system as a means to carry out this delegated authority. This system, in brief, provides for CAA - industry cooperation in the development of these performance standards, and a form of self-regulation by industry in demonstrating compliance with these standards. Since the original adoption of this part, which contains the C series TSO's, it has been found desirable to make clarifying editorial and format changes. Hence, Part 514 of the Regulations of the Administrator is being amended to provide two subparts. Subpart A contains the general requirements applicable to all Technical Standard Orders, such as "Method of Conformance," "Marking," and "Deviations." Subpart B contains the technical specifications to which a specific product must conform.

### SUBPART A—GENERAL

#### § 514.1 *Basis and purpose* – (a)

*Basis.* Section 601 of the Civil Aeronautics Act of 1938, as amended, and § § 3.18, 4a.31, 4b.18, 6.18 and 7.18 of the Civil Air Regulations.

(b) *Purpose.* The purpose of this part is to establish minimum performance standards for aircraft materials, parts, processes, and appliances which are to be used on civil aircraft of the United States, and to prescribe

the manner by which the manufacturer must show compliance with such performance standards.

§ 514.2 *Method of conformance.* A manufacturer of an aircraft material, part, process, or appliance for which standards are established in Subpart B of this part, prior to distribution for use on a civil aircraft of the United States, shall furnish a written statement of conformance certifying that the

material, part, process, or appliance meets the applicable performance standards established in this part. The statement of conformance shall be signed by a person duly authorized by the manufacturer, and shall be furnished to the Chief, Aircraft Engineering Division, Office of Aviation Safety, Civil Aeronautics Administration, Washington 25, D.C.

If complaints of nonconformance with the requirements of this Order are brought to the attention of the CAA and investigation indicates that such complaints are justified, the Administrator will take appropriate action to restrict the use of the product in civil aircraft.

§ 514.3 *Marking*. Materials, parts, processes, and appliances for which a statement of conformance has been submitted, shall be legibly and permanently marked with the following information:

(a) Name and address of the manufacturer responsible for compliance,

(b) Equipment name, or type or model designation,

(c) Weight to the nearest pound and fraction thereof,

(d) Serial number and/or date or manufacturer, and

(e) Applicable Technical Standard Order (TSO) number.

§ 514.5 *Deviations*. No deviation will be granted from the performance standards established in Subpart B. Requests for deviation from other requirements of this part should be addressed to the Aircraft Engineering Division, Office of Aviation Safety, Civil Aeronautics Administration, Washington 25, D.C.

Technical Standard Orders are obtainable without charge from the Civil Aeronautics Administration, Aviation Information Office, Washington 25, D.C.

## SUBPART B

§ 514.35 Aircraft seats and berths (Type I transport, 6g forward load) – TSO-C25a – (a) Applicability – (1) Minimum performance standards. Minimum performance standards are hereby established for aircraft seats and berths (Type I transport, 6g forward load) which are to be used in civil aircraft of the United States. These standards apply to Type I transport seats for use in transport category aircraft for which an application for type certificate was made prior to March 5, 1952.<sup>1/</sup> New models of seats and berths (Type I transport, 6g forward load) manufactured for installation in civil aircraft on or after the effective date of this order shall meet the standards of National Aircraft Standard Specification 806, revised January 1, 1956,<sup>2/</sup> with the changes and exceptions listed in subparagraph (2). Seats and berths approved by the Civil Aeronautics Administration prior to the effective date of this order may continue to be manufactured under the provisions of their original approval.

(2) Exceptions. (i) The ultimate loads corresponding to the aircraft reduced weight gust load factor or the airplane designer's special requirements may exceed the ultimate down loads for Type I seats specified in subsection 4.1.2 of NAS 806. For the purpose of this

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<sup>1/</sup> Standards for Types II, III, IV, and I (for installation in aircraft for which an application for type certificate was made after March 5, 1952,) are contained in TSO-C39.

<sup>2/</sup> Copies may be obtained from the National Standards Association, 616 Washington Loan and Trust Building, Washington 4, D.C.

order, in order to provide for such loading conditions, the ultimate down loads specified in Table I of 4.1.2 for Type I seats shall be 1,000 pounds (6g) instead of 765 pounds.

(ii) To insure that pilot and copilot seats will provide for the rearward loads resulting from the application of pilot forces to the flight controls, such seats shall withstand a rearward load of 450 pounds. The load shall be applied 8 inches above the intersection of the seat back with the seat bottom.

(iii) The weight of the seat or berth times the appropriate "g" value shall be added to the design ultimate load specified in subdivision (i) and in subsection 4.1.2 of NAS 806.

(iv) For the purpose of this order, 4.3(c) of NAS 806 should read: "that the structure is capable of supporting without failure for at least 3 seconds the ultimate loads specified in this order when applied separately."

(b) Marking. The weight required in § 514.3 need not be included.

(c) Effective date. January 15, 1957.



Date: 4/17/87

# Technical Standard Order

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**Subject: TSO-C39b, AIRCRAFT SEATS AND BERTHS**

a. Applicability.

(1) Minimum Performance Standards. This technical standard order (TSO) prescribes the minimum performance standards that aircraft seats and berths of the following types must meet in order to be identified with the applicable TSO marking:

- Type I - Transport (9g forward load)
- Type II - Normal and Utility
- Type III - Acrobatic
- Type IV - Rotorcraft

Seats and berths that are to be so identified and that are manufactured on or after the date of this TSO must meet the minimum performance standards set forth in National Aircraft Standard (NAS) Specification 809, dated January 1, 1956, with the exceptions covered in subparagraph a.(2) of this TSO. Seats and berths approved prior to the date of this TSO may continue to be manufactured under the provision of their original approval.

(2) Exceptions.

(i) The sideward loads as specified in 4.1.2. Table I of NAS 809 need not exceed the requirements of the applicable Federal Aviation Regulations (FAR).

(ii) In lieu of compliance with 2.1, 3.1.2, and 4.3.2 of NAS 809, materials in Type I seats must comply with the fire protection provisions of FAR Section (§) 25.853, including the requirements of § 25.853(c), effective 11/26/84. Materials in Type I berths must comply with the fire protection provisions of § 25.853(b).

(3) Additions. Test for Fire Blocking of Seat Cushions: Tests must be conducted in accordance with Appendix F, Part II of FAR Part 25.

b. Marking. In addition to the marking specified in FAR § 21.607(d), the following additional information must be shown when tested to the fire blocking requirements of paragraph a.(3) of this TSO.

“Complies with FAR § 25.853(c), effective 11/26/84.”

c. Data Requirements. In addition to FAR § 21.605, the manufacturer must furnish the Manager, Aircraft Certification Office (ACO), Federal Aviation Administration, having purview of the manufacturer’s facilities, one copy of the following technical data:

(1) A drawing list, enumerating all of the drawings and processes that are necessary to define the articles design.

(2) The manufacturer’s equipment operating instructions and limitations.

(3) The applicable installation instructions indicating restrictions or other conditions pertinent to installation.

(4) The manufacturer’s test report of tests results required in 4.3 of NAS 809.

(5) The manufacturer’s special cleaning and maintenance instructions.

(6) When testing is conducted to the fire blocking requirements of paragraph a.(3) of this TSO, a report containing the test results must be submitted.

(7) In addition, a note with the following statement must be included:

“The conditions and tests required for TSO approval of this article are minimum performance standards. It is the responsibility of those desiring to install the article either on or within a specific type or class of aircraft to determine that the aircraft installation conditions are within the TSO standards. If not within the TSO standards, the article may be installed only if further evaluation by the applicant documents an acceptable installation and is approved by the Administrator.”

d. Availability or Referenced Documents.

(1) Copies of NAS Specification No. 809 may be purchased from the National Standards Association, 5161 River Road, Bethesda, Maryland 20816.

(2) Federal Aviation Regulations, Part 21, Subpart O, and Advisory Circular 20-110C, “Index of Aviation Technical Standard Orders,” may be reviewed at FAA Headquarters

4/17/87

TSO-C39b

in the Office of Airworthiness, Aircraft Engineering Division, (AWS-120), and at all regional ACO's.

/S/ M. C. Beard  
Director of Airworthiness